anorexia or status hypoplasticus the insular organ produces enough insulin to prevent hypoglycemia, but not sufficient to secure the normal rate of resorption and assimilation of the food. In these cases insulin treatment is the therapy of choice.

FUNCTIONS OF INSULIN

The following functions may be attributed to insulin:

1. Acceleration of glucose oxidation in the tissues;
2. Increase of the rate at which glucose is converted into glycogen in the muscles or other tissues;
3. Inhibition of carbohydrate formation from noncarbohydrate sources; and
4. Prevention of ketone bodies formation.

The initial dose is 10 units a day, increased by 10 units daily until a dose of 40 to 50 units has been reached. It is advisable to give, frequently, orange juice and crackers between meals, especially late at bed time, in order not to be surprised by hypoglycemic shock.

SPECIAL INDICATIONS

An indication for application of insulin in the treatment of pulmonary tuberculosis is given to change the stage of undernutrition and lowered resistance. The complete loss of appetite is one of the most dangerous symptoms in tuberculosis. Unfortunately, we have to deal very often with a marked hypersensitiveness against insulin. Therefore, we start with small initial doses and alternate with glucose intravenously. Only chronic, inactive cases should be selected to prevent the danger of hemoptysis. In chronic, inactive cases which did not respond to climato- and physiotherapy, a marked improvement with insulin treatment has been reported.

An important progress in the treatment of catarrhal icterus and liver diseases is the insulin therapy. The essential point is the filling of the liver cells with glycogen. The lack of glycogen is the first sign of liver damage. In the fasting animal the liver is essential for the maintenance of a proper level of glucose in the blood. It has been found that during fasting the concentration of glucose in the hepatic vein is higher than in the portal vein, indicating that the liver liberates glucose from its glycogen stores. Insulin inhibits the breakdown of liver glycogen to glucose. In acute yellow atrophy, which is considered as an advanced stage of catarrhal jaundice, the treatment with insulin is indicated. It is important to know that the periacinous form and the cases with obstruction of the papilla Vateri do not respond to insulin treatment, a fact which is valuable in differential diagnosis.

Since we know that toxemias of pregnancy are due to alteration of the liver cells, the theoretic basis for insulin administration is given. Before interruption of the pregnancy a combined treatment of insulin and glucose should be tried. Anyway this treatment is superior to the application of narcotics. The treatment with narcotics is only symptomatic and produces finally a damage to those organs which are already involved in the pathology of toxemias of pregnancy.

The action of insulin to regulate the carbohydrate metabolism is important for the treatment of the avitaminoses. There are reports of cases of beriberi in the convulsive stage cured by the repeated injection of insulin. Also pellagra is markedly influenced by insulin administration. In both forms of sprue excellent results of insulin treatment are reported.

The antagonistic action of insulin in regard to adrenalin requires insulin treatment in all cases of hyperadrenalism.

The amount of insulin is primarily not responsible for the gravity of the hypoglycemic shock, but the adrenalin formation which is supposed to regulate the lowering of the blood sugar. The most striking result of insulin administration in nondiabetic patients is leukocytosis with relative lymphocytosis. This is due to the action of adrenalin, which regulates by way of the sympathetico-adrenal system. In Addison's disease we do not find the leukocytosis after insulin injection unless a treatment with cortex extract has been started. The hypoglycemia in adrenal insufficiency is due to the deficient adrenal secretion and the consequently unopposed action of insulin liberated in response to carbohydrate intake.

Occasionally insulin medication is indicated in atony of the stomach. Insulin produces hypoglycemia, which stimulates the autonomic center. From there the vagus receives the impulse for the gastric motility. It has been proved that the excito-secretory effect of insulin medication is missed, if by abundant glucose administration the hypoglycemic effect is inhibited.

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HIPPOCRATES' APHORISMS*

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Arcadia

SECTION FOUR (Continued)

74. An abscess forming in a joint
Dissolves when copious urine flows,
Both thick and white, as in some quartan fevers,
Or it clears up with a bleeding of the nose.

75. If the urine
Shows blood and pus,
The kidney or bladder
Is ulcerous.

76. When hair-like clots
Are with urine cast,
They are surely
By the kidneys passed.

77. When in a thick and turbid urine
Bran-like particles appear,
Inflammation of the bladder
One should well suspect and fear.

* For other aphorisms, see CALIFORNIA AND WESTERN MEDICINE, March 1940, page 125; April 1940, page 179; May 1940, page 231; July 1940, page 35; August 1940, page 85; September 1940, page 130; December 1940, page 272; January, 1941, page 27; February, 1941, page 82.

78. In a sudden spurt of bloody urine
One should entertain
The thought that it is due to rupture
Of a renal vein.

79. Sandy sediment,
In urine shown,
Clearly points
To a bladder-stone.

80. If blood and clots are being passed in urine,
With hypogastric and perineal pain
And strangury, the urinary tract
Is the infected and diseased terrain.

81. If a patient passes
Blood, scales and pus
In heavy, smelling urine,
His bladder's ulcerous.

82. If tubercles in the urethra
Suppurate and break,
It often brings relief
And ends distress and ache.

83. When copious urine
Is passed by the sick,
Alvine excreta
Are scant and thick.

SECTION FIVE

1. A spasm from taking
Hellebore,
Leads the way
To death's door.

2. A muscle-spasm
From a wound,
Sends the patient
Underground.

3. Spasm or hiccup, following
A copious hemorrhage,
Indicates that the disease
Has reached a dangerous stage.

4. A spasm or hiccup
After a strong purge,
Is oft a sign
Of stress and urge.

5. A drunkard who suddenly loses his speech
Is apt to die convulsed, unless
A fever comes, and he recovers
From the effects of his excess.

6. A person seized with tetanus
Dies mostly in four days.
If he survives this fatal date,
Restored to health he stays.

7. If epilepsy has a start
At puberty or prior to,
A cure may come; but with a later start,
The fatal end may well ensue.

8. Inflammation of the pleura
That does not seem to mend
Within the course of fourteen days,
In empyema is apt to end.

9. The age, when phthisis
Tends to arrive,
Is from eighteen
To thirty-five.

10. If in the sick, surviving a spell of quinsy,
The lungs become affected,
They mostly die within a week;
If not, the pleura-pus's to be expected.

11. If phthisic's sputum, when poured on coals,
Has a heavy disagreeable smell;
And, if the hair falls from his head,
It does his early death foretell.

12. A consumptive who loses
The hair from his head,
And has had diarrhea,
Soon will be dead.

13. If frothy blood
Comes up with cough,
It's the lungs
That cast the stuff.

14. A diarrhea in a consumptive
Of mortal end is quite presumptive.

15. If pleurisy is followed by empyema,
And if, in forty days, the sick is well again,
He may escape the scourge;
If not, the phthisis-germs sweep the terrain.

16. Heat used too much may cause
The muscles weaken and nerve paralyze;
It may induce faints, bleeding, dullness
And a premature demise.

17. Cold may cause convulsions,
Fever, chills,
Gangrene and tetanus;
At times it kills.

18. Cold is hostile to the bones,
To teeth, to nerves, to brain,
And to the spinal marrow,
While heat helps health to gain.

19. Parts that are frozen
Should be treated with heat,
Unless one meets bleeding
Or expects it to meet.

20. Cold causes pain without an abscess;
It contracts ulcers and hardens skin,
Brings on tetanus, convulsions;
Withal oft fever-chills are seen.

21. If a sturdy youth, who has no wound,
Is seized with spasms in summer heat,
Heavy affusions of cold water
This peril often fully meet.

22. If heat brings out pus in a sore,
This sore need not cause grief or dread;
Heat thins and softens skin, checks pains and chills,
Fits, tetanus and dullness of the head.

22a. Heat helps to heal the bone fractures,
Frost-sores, gangrenes and wounds,
And herpes of the private parts
While cold in dangers and ill turns abounds.

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(To be continued)